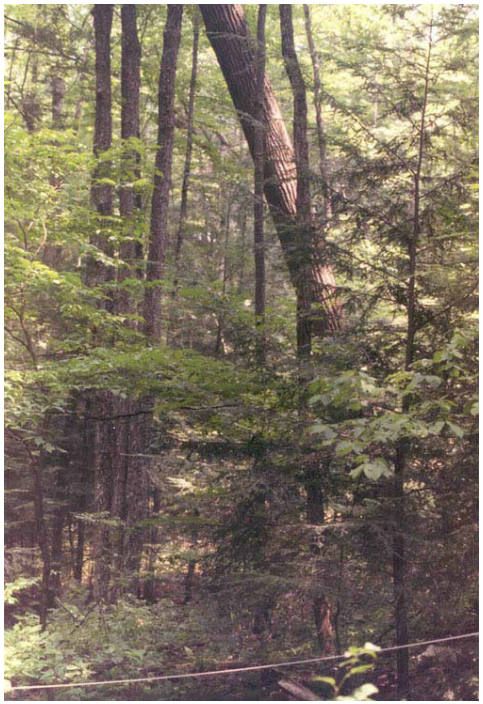
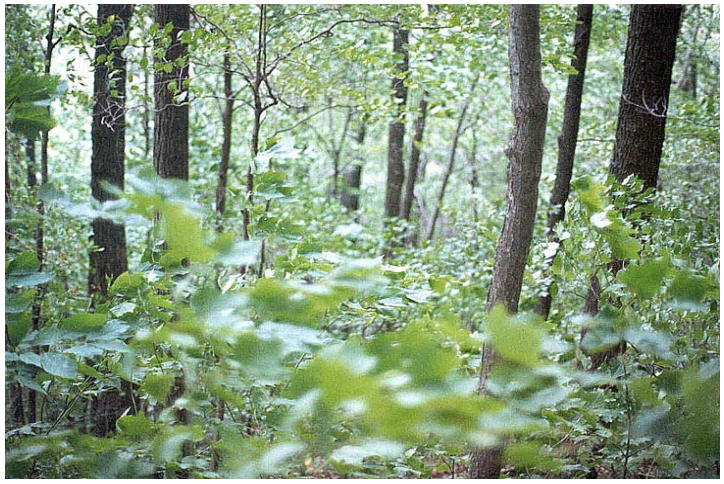
Great Smoky Mountains National Park photographs of *Quercus rubra - Acer rubrum / Calycanthus floridus - Pyrularia pubera / Thelypteris noveboracensis Forest*





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COMMON NAME	Red Oak - Red Maple / Sweet-shrub - Buffalo-nut / New York Fern Forest
SYNONYM	Appalachian Montane Oak - Hickory Forest (Red Oak Type)
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Deciduous forest (I.B)
PHYSIOGNOMIC GROUP	Cold-deciduous forest (I.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.B.2.N)
FORMATION	Lowland or submontane cold-deciduous forest (I.B.2.N.a)

ALLIANCE *Quercus alba - (Quercus rubra, Carya* spp.*)* Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is found in the southern Blue Ridge Mountains of Georgia, North Carolina, South Carolina, Tennessee, and Virginia.

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This community was sampled on the Cades Cove and Mount Le Conte quadrangles. Historic samples are from the Cades Cove quadrangle and Thunderhead Mountain quadrangles, but the community is likely in other areas of the Park. On the Cades Cove quadrangle, recent and historic samples representing this community come from elevations ranging from 2170 to 3820 feet. In the northern portion of the quadrangle, this community was sampled from the east- and west-facing low slopes and draws of Leadbetter Ridge and on low slopes in the vicinity of Boring Ridge and Rabbit Creek Road. In the central portion of the quadrangle, this community was also sampled on the low slopes north of Doe Ridge; above Forge Knob Branch; above Licklog Branch; and on northeast high slopes and ridges of Gregory Ridge. It was also sampled in the southeastern portion of the quadrangle on a west-facing draw above Eagle Creek. On the Mount Le Conte quadrangle this community was sampled from elevation ranging from 2295 to 3260 feet. In the western portion of the quadrangle it was sampled on the high, northwest slope of Piney Mountain and in the vicinity of the Baskins Creek trail. In the southeast, it was sampled on a low slope north of Porters Mountain, above Porter Creek.

ENVIRONMENTAL DESCRIPTION

Globally

Quercus rubra forests at intermediate elevations (mostly below 3500 feet, ranging from 2000-4000) in the southern Blue Ridge escarpment. These forests occur on mostly north to east, mid to upper, moderately steep slopes of intermediate exposure, over acidic soils.

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This forest occurs at intermediate elevations, mostly on northern and western slopes of intermediate to protected exposure. Elevations averaged 2870 feet but ranged from 2170 to 4000 feet.

MOST ABUNDANT SPECIES

Globally

Stratum	Species
Tree canopy	*Quercus rubra, Acer rubrum*
Subcanopy	*Acer rubrum, Halesia tetraptera* var. *monticola, Oxydendrum arboreum*
Short shrub	*Gaylussacia ursina*
Herbaceous	*Galax urceolata, Thelypteris noveboracensis*

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See above

CHARACTERISTIC SPECIES

Globally

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Quercus rubrum, Acer pensylvanicum, Calycanthus floridus, Pyrularia pubera

VEGETATION DESCRIPTION
Globally
The canopy is dominated by *Quercus rubra*, often with *Acer rubrum* and/or *Liriodendron tulipifera* codominating. Other minor canopy species may include *Carya alba, Carya glabra, Halesia tetraptera, Quercus prinus*, and *Magnolia fraseri*. The subcanopy and sapling strata include the canopy species as well as *Halesia tetraptera, Betula lenta, Tsuga canadensis, Cornus florida, Acer pensylvanicum,* and *Oxydendrum arboreum*. The shrub stratum is typically sparse but may have local dominance by *Gaylussacia ursina* or *Rhododendron maximum*. Other typical species in the shrub stratum include *Castanea dentata, Calycanthus floridus, Pyrularia pubera, Rhododendron calendulaceum, Vaccinium corymbosum*, and *Viburnum acerifolium*. Herbaceous cover is sparse to moderate but species rich. Ferns can be locally dominant, typically *Thelypteris noveboracensis* and *Athyrium filix-femina* ssp. *asplenioides*. Other typical species include *Aster divaricatus, Carex* spp. *(e.g. Carex aestivalis, Carex debilis, Carex digitalis, Carex laxiflora* var. *laxiflora, Carex pensylvanica), Chimaphila maculata* var. *maculata, Desmodium nudiflorum, Dioscorea quaternata, Eupatorium purpureum, Galium latifolium, Galax urceolata, Goodyera pubescens, Houstonia purpurea* var. *purpurea, Lysimachia quadrifolia, Maianthemum racemosum* ssp. *racemosum, Medeola virginiana, Polygonatum biflorum, Polystichum acrostichoides, Solidago caesia* var. *curtisii*, and *Uvularia puberula*.

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This canopy is strongly dominated by *Quercus rubra* and *Acer rubrum*. Occasionally *Liriodendron tulipifera, Quercus prinus,* and *Robinia pseudoacacia* may have high canopy coverage. The subcanopy is dominated by *Acer rubrum*, *Halesia tetraptera* var. *monticola,* and *Oxydendrum arboreum.* Other species that may be present in the canopy and subcanopy, but have minor coverage, include *Carya alba, Cornus florida, Magnolia fraseri, Betula lenta.* Shrub coverage is moderate to high and dominated by deciduous species, most often *Gaylussacia ursina.* Other highly constant species in the shrub stratum include *Acer pensylvanicum, Castanea dentata, Calycanthus floridus, Cornus florida, Pyrularia pubera, Halesia tetraptera* var. *monticola, Magnolia acuminata, Magnolia fraseri, Nyssa sylvatica, Prunus serotina, Rhododendron calendulaceum, Rhododendron maximum, Sassafras albidum, Vaccinium corymbosum,* and *Viburnum acerifolium. Tsuga canadensis* saplings often have moderate coverage in the shrub stratum. Herbaceous cover is sparse to moderate but species rich. Species with the highest coverage and constancy are *Galax urceolata* and *Thelypteris noveboracensis.* Other species with high constancy include *Aster divaricatus, Carex* spp. *(Carex aestivalis, Carex debilis, Carex digitalis, Carex laxiflora* var. *laxiflora, Carex pensylvanica), Chimaphila maculata* var. *maculata, Dioscorea quaternata, Galax urceolata, Goodyera pubescens, Houstonia purpurea* var. *purpurea, Lysimachia quadrifolia, Medeola virginiana, Polygonatum biflorum, Polystichum acrostichoides, Solidago caesia* var. *curtisii, Thelypteris noveboracensis,* and *Uvularia puberula,* but other species may occur. Common vines are *Smilax rotundifolia, Smilax glauca*, and *Vitis aestivalis.*

OTHER NOTEWORTHY SPECIES
No information

CONSERVATION RANK G3G5

RANK JUSTIFICATION

DATABASE CODE CEGL006192

COMMENTS
Globally
This forest is distinguished from High Elevation Red Oak forests by lack of species such as *Betula alleghaniensis*, *Ilex montana, Vaccinium simulatum*, and by lacking abundant *Hamamelis virginiana*, as well as its occurrence at lower elevations. In the southern Blue Ridge escarpment region, these montane oak - hickory forests seem to occupy environments intermediate between more protected forests dominated by *Quercus alba* and drier, more exposed *Quercus prinus* forests. This association was originally defined from the Chattooga Basin Project (S. Simon pers. comm.) and later refined with information from the Great Smoky Mountains. Global name and concept may need revision as more information becomes available. This association may be a subset of the more broadly defined *Quercus alba - Quercus (rubra, prinus) / Rhododendron calendulaceum - Kalmia latifolia - (Gaylussacia ursina)* Forest (CEGL007230) but is distinguished by the dominance of *Quercus rubra*, its generally protected topographic setting, and the fact that it may represent areas formerly dominated by *Quercus rubra* and *Castanea dentata*.

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REFERENCES
Nelson 1986, Schafale and Weakley 1990, Simon pers. comm.